IN THE CLAIMS:

The below listed set of claims replaces all listings previously submitted.

1. (Currently amended) A heat exchanger or reactor comprising a stack of parallel plates, wherein

each plate of the stack having perforations defining an array of spaced column precursors of thickness equal to the plate thickness,

said column precursors being joined together by ligaments having a thickness less than the plate thickness,

each ligament extending between a pair of adjacent column precursors such that the column precursors of any one plate being coincident in the stack with the column precursors of any adjacent plate, whereby the stack is provided with an array of individual columns, each column extending perpendicularly to the plane of the plates~~,~~

~~each plate is provided with extensions in the form of loops which stack together to provide one or more tanks at the sides of the stack, and~~

whereby fluid flowing through the stack is forced to follow a tortuous flow path around the columns, and has the ability to flow parallel to the plane of each said plate.

2. (Currently amended) A heat exchanger or reactor according to claim 1, wherein ~~the ligaments of each plate of each pair of adjacent plates~~ the headers are ~~displaced relative to those of~~ provided within the ~~other plate~~ profile of the ~~pair~~ plate.

3. (Currently amended) A heat exchanger or reactor according to claim 1 ~~or 2~~, wherein ~~the top and bottom of the stack are closed by unperforated plates~~ there comprises an arrangement of interlinking ligaments between adjacent column precursors.

4. (Currently amended) A heat exchanger or reactor according to claim 1, wherein ~~the stack has side plates which are formed by the stacking of unperforated border regions around the edges of individual plates of the stack, the unperforated border regions being integrally formed as part of the plate~~ there comprises a plurality of ligaments connected to each said precursor.

5. (Canceled)

6. (Currently amended) A heat exchanger or reactor according to claim 1, wherein ~~at least two differently perforated plates are used, the two plates having different ligament patterns~~ each plate is provided within the profile of the plate with apertures which stack together to provide one or more header tanks.

7. (Currently amended) A heat exchanger or reactor according to claim 1, wherein ~~the~~ each said ligament extending between a pair of adjacent column precursors ~~are of circular cross section~~ is displaced relatively adjacent to ligaments positioned above and/or below said ligament.

8. (Currently amended) A heat exchanger or reactor according to claim 1, wherein the ~~heat exchanger further comprises a plurality of joined together stacks~~ top and bottom of the ~~parallel perforated plates, each~~ stack are closed ~~being separated from an adjacent stack~~ by ~~a solid~~ unperforated ~~plate whereby two or more separate fluid stream passageways are provided~~ plates.

9. (Currently amended) A heat exchanger or reactor according to claim 1, wherein ~~the perforated plates are of metal of thickness 0.5 mm or less~~ the stack has side plates which are formed by the stacking of unperforated border regions around the edges of individual plates of the stack, the unperforated border regions being integrally formed as part of the plate.

10. (Currenty amended) A heat exchanger or reactor according to claim 1, wherein ~~the components of the stack are diffusion bonded together~~ the perforations in the plates and the reduced thickness of the ligaments are produced by photochemical etching or spark erosion.

11. (Currently amended) A heat exchanger or reactor according to claim 1, wherein ~~the components of the stack are brazed together~~ at least two differently perforated plates are used, the two plates having different ligament patterns.

12. (Currently amended) A heat exchanger or reactor according to claim 1, wherein ~~the plates of the stack are provided at their edges with extensions to assist location of the plates in the stack~~ the column precursors are of circular cross section.

13. (Previously Canceled).

14. (Currently amended) A heat exchanger or reactor according to claim 1, wherein the ~~loops are reinforced by cross-members~~ perforated plates are of metal of thickness 0.5 mm or less.

15. (Currently amended) A heat exchanger or reactor according to claim 1, wherein the ~~heat exchanger further comprises a plurality of stacks of plates and one pair of adjacent stacks are separated by a plate having perforations to allow controlled injection of fluid at higher pressure from one stack into fluid at lower pressure in an adjacent stack~~ components of the stack are diffusion bonded together.

16 (Currently amended) A heat exchanger or reactor according to claim 1, wherein the ~~heat exchanger further comprises a plurality of passageways to contain catalytic material, those passageways being separated by an intervening plate from the stack of parallel perforated plates~~ components of the stack are brazed together.

17. (Currently amended) A heat exchanger or reactor according to claim 16, wherein the ~~passageways to contain the catalytic material are defined between plates having parallel ribs running the length of the plates~~ plates of the stack are provided at their edges with extensions to assist location of the plates in the stack.

18. (Currently amended) A heat exchanger or reactor according to claim ~~16 or 17~~ 1, wherein each plate is provided with extensions in the form of loops which stack together to provide one or more tanks at the sides of the stack ~~the passageways to contain the catalytic material closed at one or both of their ends by mesh material~~.

19. (Currently amended) A heat exchanger or reactor according to claim 18, wherein the loops are reinforced by cross-members ~~A perforated plate, wherein the plate has an array of spaced column precursors, the column precursors being of thickness equal to the plate thickness and being joined together by ligaments, each ligament extending between a pair of adjacent column precursors, the ligaments having a thickness less than the plate thickness, wherein each plate is provided with extensions in the form of loops which stack together to provide one or more tanks at the sides of the stack, and whereby fluid has the ability to flow within the plane of said plate~~.

20. (New) A heat exchanger or reactor according to claim 1, further comprising a plurality of stacks of plates and one pair of adjacent stacks are separated by a plate having perforations to allow controlled injection of fluid at higher pressure from one stack into fluid at lower pressure in an adjacent stack.

21. (New) A heat exchanger or reactor according to claim 1, further comprising a plurality of passageways to contain catalytic material, said passageways being separated by an intervening plate from the stack of parallel perforated plates.

22. (New) A heat exchanger or reactor according to claim 21, wherein the passageways to contain the catalytic material are defined between plates having parallel ribs running the length of the plates.

23. (New) A heat exchanger or reactor according to claim 21, wherein the passageways to contain the catalytic material are closed at one or both of their ends by mesh material.

24. (New) A heat exchanger or reactor according to claim 1, further comprising a plurality of joined stacks of the parallel perforated plates, each stack being separated from an adjacent stack by a solid unperforated plate whereby two or more separate fluid stream passageways are provided.

25. (New) A perforated plate, wherein the plate has an array of spaced column precursors, said column precursors being joined together by ligaments, each ligament extending between a pair of adjacent column precursors, the ligament having a thickness less than the plate thickness, wherein each plate is provided within the profile of the plate with apertures which stack together to provide one or more header tanks adjacent the sides of the stack, and whereby fluid has the ability to flow within the plane of said plate.